

A NEW KOHLSIA FROM THE REPUBLIC OF
COLOMBIA (SIPHONAPTERA: CERATOPHYLLIDAE)

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ABSTRACT—Description and illustrations of *Kohlsia falcata* Méndez and Hansen, n. sp. are given. This species is compared with *K. tiptoni* Méndez and Altman, its nearest known relative.

The new species of *Kohlsia* described in this paper represents the first record of the genus for the Republic of Colombia. Another South American species, *K. campaniger* (Jordan), was described from Ecuador. Presently, the known range of *Kohlsia* seems to extend from Mexico, throughout Central America and Panamá to areas of Colombia and Ecuador in northwestern South America. Tipton and Machado-Allison (1972) present no record of *Kohlsia* from Venezuela. However, it is possible that this genus is extant also in that country.

Kohlsia falcata Méndez and Hansen, new species

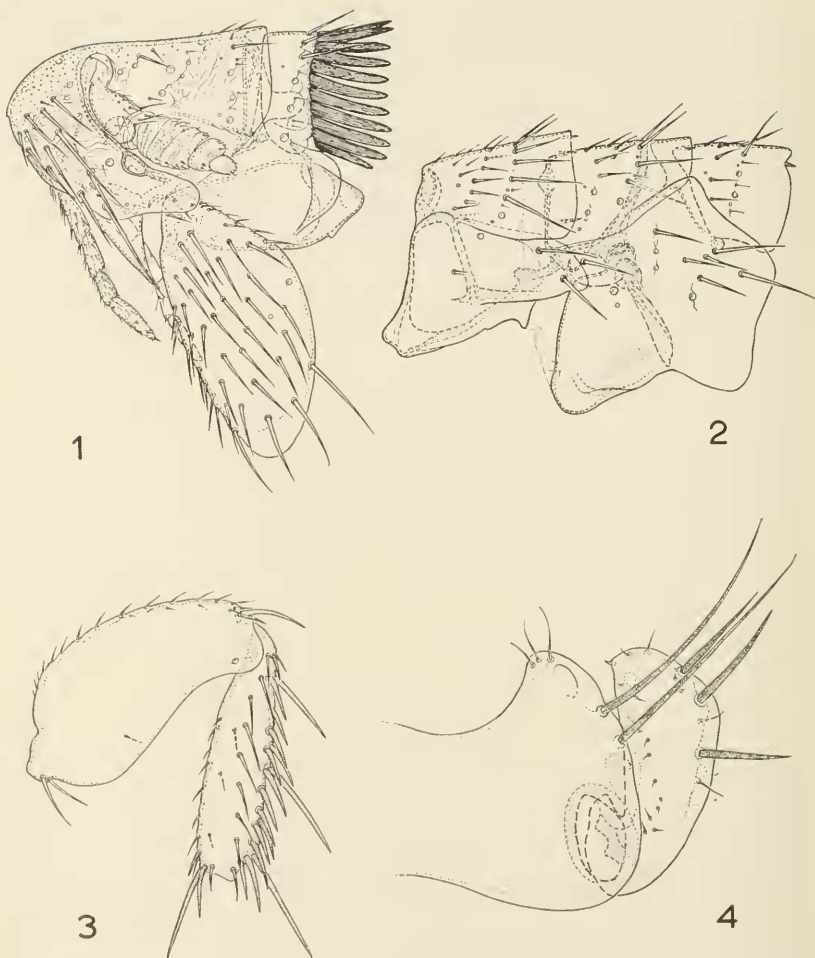
Fig. 1-8

Type material: ♂ Holotype, ♀ allotype and 1 ♂ paratype, ex *Tamandua tetradactyla* Linnaeus, Hacienda "La Conquista" (humid tropical forest, elevation 642 m), 70 km North of Puerto López, Departamento del Meta, Colombia, July 1971, H. Hansen, collector. Holotype and allotype deposited in the U.S. National Museum of Natural History. Paratype in the British Museum (Natural History).

Length of types (in mm): ♂ Holotype, 1.95, ♀ allotype, 2.00; ♂ paratype, 1.87.

Diagnosis: *Kohlsia falcata*, n. sp. is similar to *K. tiptoni* in several morphological features. Two of the most outstanding of these are the tibial comb, found on all legs, and the possession of a prominent bristle on the dorsal margin of the distal arm of the ninth sternum. It is readily separated from the latter species and from all other known *Kohlsia* by the peculiar primary dorsal lobe of the aedeagus, which is definitely sickle-shaped. A squamose area of the aedeagal alate lobe also seems to be peculiar to the present new species.

MALE: Head (fig. 1): Anterior margin provided with short frontal tubercle. Preantennal area with numerous micropores, 3 rows of prominent bristles and several scattered minute bristles. Postantennal area having few micropores and 3 rows of unequal bristles. Both pre- and postantennal areas showing typical



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Fig. 1-4, *Kohlsia falcata*, male. 1, head, prothorax and procoxa. 2, mesothorax, metathorax and first abdominal segment. 3, femur and tibia of hind leg. 4, process and movable finger of clasper.

striation. Antenna as illustrated. Trabecula centralis large, rounded. Eye sub-oval and slightly pigmented. Genal process ending in subrounded apex. Maxillary lobe subtriangular. Maxillary palpus reaching about $\frac{1}{2}$ of fore coxa, clothed with many bristles. Labial palpus exceeding length of maxillary palpus.

Thorax (fig. 1, 2): Pronotum relatively narrow, armed with one row of dissimilar bristles and pronotal comb of about 22 semiblunt spines. Mesonotum with several dorsal bristles and 3 lateral rows of bristles, the last row being the more conspicuous. Mesonotal flange having 2 or 3 pseudosetae per side. Metanotum

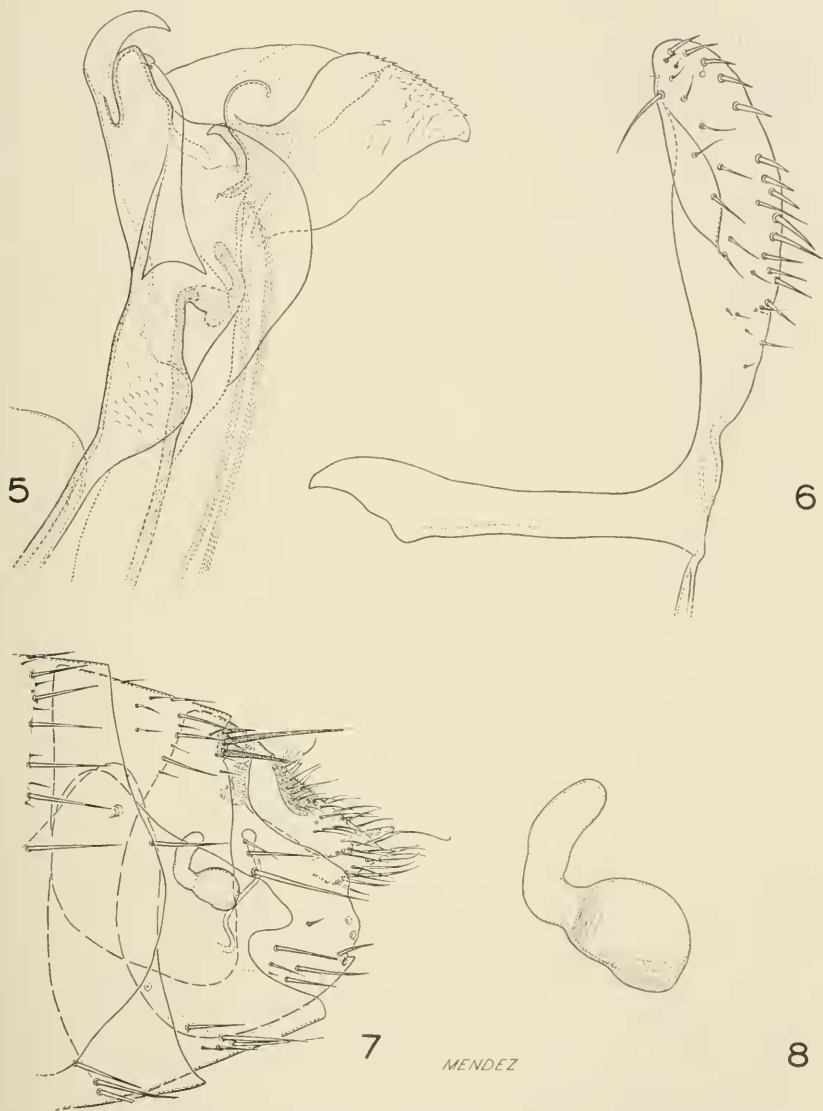


Fig. 5-6, *Kohlsia falcata*, male. 5, terminal portion of aedeagus. 6, ninth sternum.

Fig. 7-8, *K. falcata*, female. 7, modified abdominal segments. 8, spermatheca.

provided with 3 rows of bristles. Mesepisternum apparently with but 1 or 2 bristles, its antero-ventral portion being truncate. Mesepimeron with no more than 3 bristles: Metasternum exhibits 3 minute bristles on its most anterior section and single large bristle close to pleural ridge. Metepimeron with about 9 bristles, of which only the first 3 are arranged in a definite row.

Legs: Morphology and chaetotaxy very much as in *K. tiptoni*. The most conspicuous feature displayed by all legs is the presence of a tibial comb of thickened false spines.

Abdomen: Tergum I bearing several bristles, the majority arranged in 2 well defined rows. Terga II to VII with bristles arranged in 2 rows. Terga I-IV having 1 or 2 spinelets per side. Sternum I with 1 ventral bristle. Sterna II-VI with single row of ventral bristles.

Modified abdominal segments: Tergum VIII broad but scarcely ensheathing part of genitalia, with shallowly convex posterior margin. Sternum VIII apparently reduced to a semimembranous structure devoid of bristles. Distal arm of sternum IX (fig. 6) larger than proximal arm, resembling a club armed with a row of submarginal subspiniform bristles in combination with a number of thin bristles which are distributed irregularly.

In addition, this arm presents a prominent subapical bristle oriented cephalad. Fixed process of clasper (fig. 4) broad, having subangular apex exhibiting three subapical bristles and oval fovea. Acetabular bristles displaced towards upper half of immovable process (this peculiarity is also observed in *K. tiptoni* but not in other members of the genus where acetabular bristles are normally inserted on subcaudal border facing acetabulum). Movable process (fig. 4) about reaching level of apex of fixed process, slightly subtriangular, being narrower at its base and gradually dilated into subangular portion which bears small subrounded anterior fovea. This process is armed with three stout bristles restricted to its anterior half.

Aedeagus: Aedeagal apodeme devoid of apical appendage. Terminal portion of aedeagus (fig. 5) conspicuous but with very compact as compared with that of *K. tiptoni*. Proximal spur weak, upturned, not strong and curved backwards as in *K. tiptoni*. Median dorsal lobe not prominent, barely sinuate. Primary median dorsal lobe outstanding, strongly curved backwards as a sharp blade. Paradorsal lobe represented by structure of irregular shape, with very sclerotized margin. Lateral lobes arched, very expanded. Crochet prominent, spiculate, developed as a broad blade caudally subacuminate and barely curved, anteriorly connected with accessory membrane. Sclerotized inner tube well defined; its armature simple, claw-shaped, not bilobed. Apex of sclerotized inner tube well developed and arched. Crescent sclerite represented by reduced and inconspicuous structure. Alate lobe provided with scale-like pattern. Fuleral latero-ventral lobe well sclerotized, with terminal portion sharply bent upwards. Virga dorsalis beginning on area of fuleral latero-ventral lobe and extending into aedeagal apodeme. True penis rods not coiled, reaching beyond terminal portion of aedeagal apodeme.

FEMALE: General appearance as in the male, with the exception of the more rounded head and the sexual structures.

Modified abdominal segments (fig. 7): Sternum VII having almost parallel lateral margins, with three rows of bristles in front of antepygial bristles. Sternum VIII well developed, broad, with hind margin irregular, strongly sinuate, and provided with bristles of various sorts. Sensillum with about 21 sensory pits per side. Dorsal anal lobe and ventral anal lobe of proctiger armed with several inconspicuous bristles. Anal stylet about four times as long as its maximum width, attenuated distally, bearing long apical bristle and minute dorsal bristle. Sternum VII characterized by distinctly sinuate posterior margin with deep subcaudal

indentation producing a broad sinus. This sternum armed with several bristles as illustrated. Spermatheca (fig. 7, 8) obviously of the same type presented by *K. tiptoni*. However, in the present new species the bulga is more convex dorsally and the hilla is narrower anteriorly and moderately upturned, not strongly bent as in *K. tiptoni*. Bursa copulatrix (fig. 7) having distinctly sinuate duct and broad, rounded perula.

Taxonomic discussion: *Kohlsia falcata*, n. sp. displays several remarkable features which are also found on *Kohlsia tiptoni*. These species possess a characteristic tibial comb of spines on all legs, a detail distinctive of the allied genus *Jellisonia* Traub. Also, as in *Jellisonia*, the ninth sternum distal arm of the two species of *Kohlsia* under discussion present a number of subspiniform bristles and a typical prominent bristle located on its dorsal margin. In these fleas the acetabular bristles of the fixed process are medially located, not caudally oriented as normally occur in other *Kohlsia* species. The spermatheca and the bursa copulatrix of *K. falcata*, n. sp. and *K. tiptoni* are somewhat similar morphologically.

In spite of the high degree of similarity existing between *K. falcata*, n. sp., and *K. tiptoni*, they differ in several details. One of the most distinctive differences is the presence of 3 stout bristles on the movable finger in the new species, instead of the 4 which are peculiar to *K. tiptoni*. The sternum VIII, which is present in *K. tiptoni* as a reduced structure provided with an apical bristle, seems to be almost completely absent in *K. falcata*, n. sp. in which it appears as an amorphous, semimembranous structure without any bristle. Other details in which the 2 species differ are mentioned in the diagnosis and in the description sections of this paper. Other differences may be detected in the accompanying figures which should be compared with those of *K. tiptoni* as presented by Méndez and Altman (1960).

In light of some of the factors outlined above, a revision of the genus *Kohlsia* might reasonably regard *K. falcata* n. sp. and *K. tiptoni* as members of a particular subgenus, perhaps phylogenetically near the genus *Jellisonia* Traub.

Remarks: The association of *Kohlsia falcata*, n. sp. with the Colared Anteater, *Tamandua tetractyla*, is probably not normal. In general, most of the information on the host-parasite relationship of the genus indicates that rodents of the family Cricetidae and Sciuridae are the natural hosts. It may be well founded to think that the present new species is a natural parasite of an arboreal or semi arboreal rodent. The possibility exists that this anteater, being partially arboreal, obtained the fleas from the nest of a tree-inhabiting rodent, perhaps a species of squirrel. It is significant to note that the few specimens of the closely related species, *Kohlsia tiptoni*, were obtained from the following hosts: *Didelphis marsupialis*, *Tylomys panamensis*, *Sciurus*

granatensis, and an unidentified rat. The first three animals mentioned, are either partial or completely arboreal.

The specific name, *falcata*, adopted for this flea, refers to the aedeagal primary dorsal lobe which resembles a sickle blade.

REFERENCES

- Méndez, E. and R. Altman. 1960. A new species of *Kohlsia* from Central America (Siphonaptera: Ceratophyllidae). Proc. Entomol. Soc. Wash. 62:45-50.
- Tipton, V. J. and C. E. Machado-Allison. 1972. Fleas of Venezuela. In: Ectoparasites of Venezuela. Brigham Young University Science Bulletin. Biological Series 17, 115 pp., 91 figs.